

Motorola

HOME RADIO

S E R V I C E M A N U A L

MODELS
52CW1U
52CW2U
52CW3U
52CW4U

CHASSIS
HS-383

GENERAL INFORMATION

TYPE - Wall-mounted, superheterodyne radio, combined with an electric clock which may be set to automatically turn the radio on.

RECEIVER MODELS - Model	Color
52CW1U	Yellow
52CW2U	White
52CW3U	Green
52CW4U	Red

TUNING RANGE - 535 to 1620 Kc IF - 455 Kc

TUBE COMPLEMENT - Type	Function
12BE6	Converter
12BD6	IF Amplifier
12AT6	Det, AVC & AF Amp
50C5	Power Amplifier
35W4	Rectifier

POWER SUPPLY - Operates from 117 volts, 60 cycle, alternating current only.

POWER CONSUMPTION - 35 watts

CLOCK - Sessions self-starting electric clock, with Motorola face and hands. See "SERVICE NOTES" for clock repair information.

MOUNTING

Mount the clock radio in a suitable location on the wall with two #10 x 1-1/4" round head wood screws or two 1" long picture hangers (furnished with each new clock radio). Use the screws for fastening the clock radio to a wooden wall or into a stud in a plastered wall, and the picture hangers for attaching the set to a plastered or plasterboard wall. The spacing between the two screws or hangers should be 6-7/8", as shown in Figure 2.

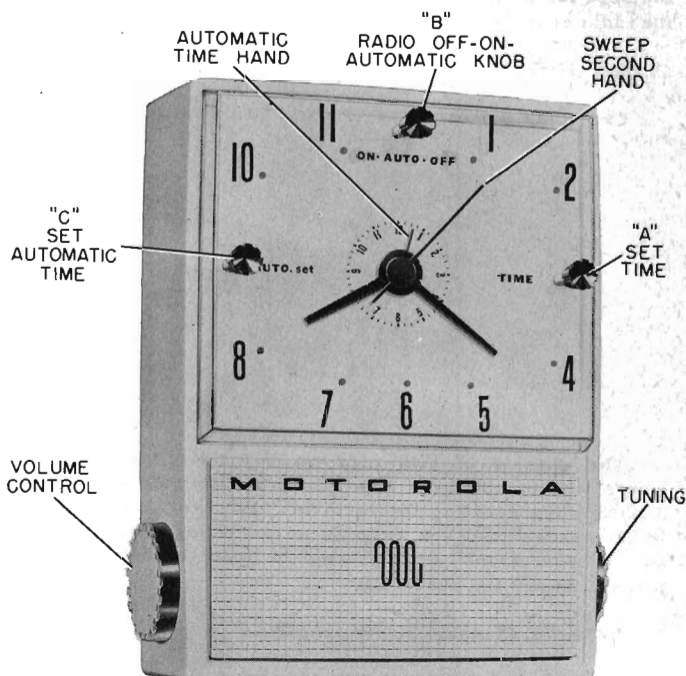


FIGURE 1. FRONT VIEW OF RECEIVER

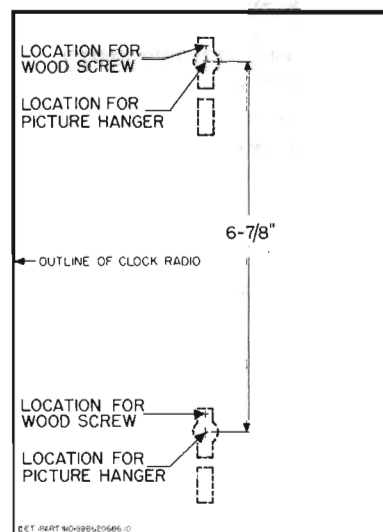


FIGURE 2. MOUNTING LOCATIONS

LIST APPLICABLE BULLETINS & SUPPLEMENTS HERE:

OPERATING INSTRUCTIONS

The locations and functions of the clock and radio controls are shown in Figure 1.

NORMAL RADIO OPERATION

Knob "B" on the clock turns the radio on or off. Select stations with the TUNING knob, and adjust volume with the VOLUME control.

A built-in ferrite magnetic iron core antenna eliminates the need for an outside antenna. CAUTION: Never connect the radio chassis to a water pipe, radiator, or other ground.

CLOCK OPERATION

The clock will start as soon as the receiver is plugged

into an electrical outlet. To set the hands to the correct time, pull out knob "A" and rotate it in a clockwise direction only.

AUTOMATIC RADIO OPERATION

The clock controls may be pre-set to turn the radio on automatically at any time up to ten hours in advance.

Rotate knob "C" clockwise to the desired time on the automatic time dial scale. Rotate knob "B" to the "AUTO" position. At the pre-set time the radio will begin to play.

If the radio has been turned on automatically and is left unattended, with knob "B" in the "AUTO" position, it will shut off after approximately two hours. To permit continuous operation, rotate knob "B" to the "ON" position.

SERVICE NOTES

The chassis of this receiver is isolated from the AC power line circuit by a capacitor, to eliminate the shock hazard when handling the receiver. However, as an additional precaution when aligning or servicing the receiver, an isolation transformer should be inserted between the power line and the chassis.

TO REMOVE CHASSIS FROM CABINET

1. Pull off the two radio control knobs.
2. Remove the four screws from the back cover of the cabinet. Remove the back cover.
3. Remove two hex screws mounting chassis to cabinet and two screws mounting chassis to speaker. See Figure 4.

TO REMOVE CLOCK FROM CABINET

1. Remove the radio chassis as described above.
2. Pull off the three clock control knobs.
3. Remove the clock crystal by pressing with thumb at the center of the right side of the crystal.
4. Remove the three speed nuts which fasten the clock to the cabinet.
5. Remove the clock carefully, to prevent damage to its hands or face.

TO SYNCHRONIZE CLOCK HANDS & SWITCH

1. Turn the radio control shaft ("B") to "AUTO" position.

2. Slowly rotate the automatic time set shaft ("C") clockwise until a "click" is heard, indicating that the switch contacts have closed. Do not overshoot this point.

3. Reassemble all four hands in the 12 o'clock position.

4. Check the operation of the clock to be sure the radio turns on at the time indicated on the automatic time dial scale.

CLOCK REPAIR INFORMATION

Sessions Switch Timers can be repaired at Sessions Authorized Service Stations or at the service department of The Sessions Clock Company, Forestville, Conn. Consult your Motorola distributor for the name of the nearest Sessions Authorized Service Station, or refer to the Classified Section of the Telephone Directories in the large cities.

The Timer should be removed from the radio cabinet, wrapped carefully in order that no further damage results during shipment. Also, a letter of instructions should contain the following information:

The proper return address, the approximate date of purchase of the radio.

An acknowledgement with a quotation and a request for payment will be sent to the dealer before the repair is made. The timer will be returned to the dealer upon receipt of payment. If the timer is within warranty, repairs will be made on a no-charge basis.

ALIGNMENT

NOTE: It is recommended that an isolation transformer be placed between the power line and the receiver to avoid hum and electrical shocks. If an isolation transformer is not available, connect the low side of the signal generator to B- through a .1 mf capacitor.

1. Connect a low range output meter across the speaker voice coil.
2. Connect the low side of the signal generator to B-.
3. Set the signal generator for 400 cycle, 30% modulation.

4. Turn the receiver volume control to maximum.
5. Use a small fibre screwdriver for aligning the IF and diode transformers.
6. As stages are brought into alignment, reduce the signal generator output to a level which produces less than .40 volts (.05 watt) across the voice coil to avoid overloading the receiver.
7. See Figure 3 for adjustment locations and the following chart for procedure.

ALIGNMENT CHART

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	GANG SETTING	ADJUST	REMARKS
IF ALIGNMENT						
1.	.1 mf	Grid of conv. (pin 7, 12BE6)	455 Kc	Fully open	1, 2, 3 & 4 (IF cores)	Adjust for maximum.
RF ALIGNMENT						
2.	.1 mf	Grid of conv. (pin 7, 12BE6)	1620 Kc	Fully open	5 (Osc)	Adjust for maximum.
3.	-	Radiation loop*	1400 Kc	Tune for max	6 (Ant)	Adjust for maximum.

*Connect generator output across 5" diameter, 5 turn loop and couple inductively to receiver loop. Keep generator loop perpendicular to axis of and at least 12 inches from receiver iron core loop.

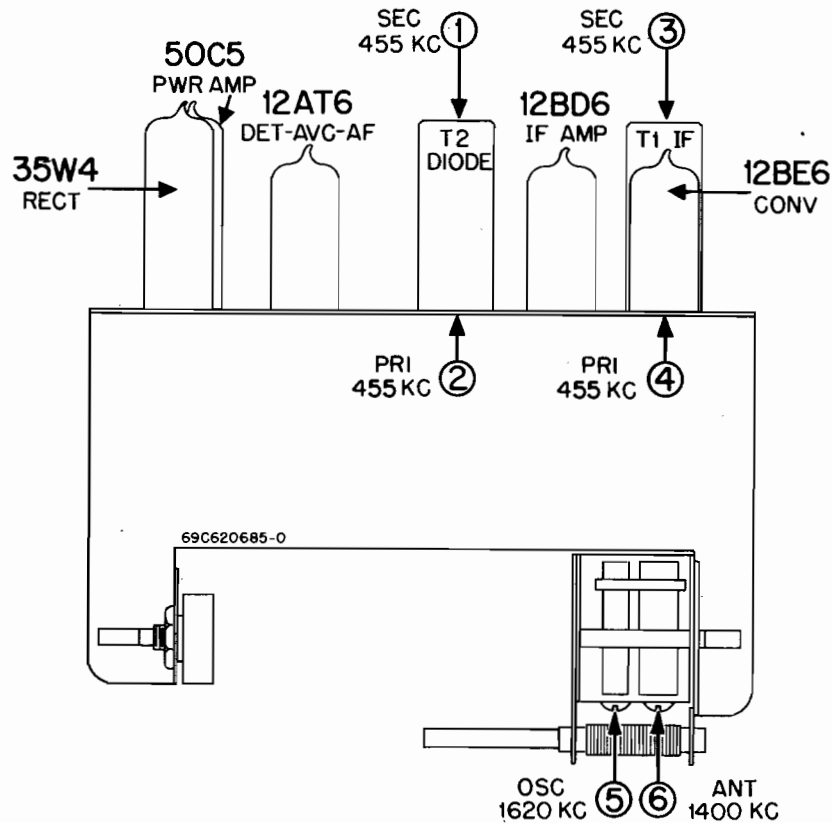


FIGURE 3. TUBE AND ALIGNMENT LOCATIONS

ELS

W1U
W2U
W3U
W4U

ISIS

883

SWEEP
SECOND
HAND

"A"
SET
TIME

TUNING

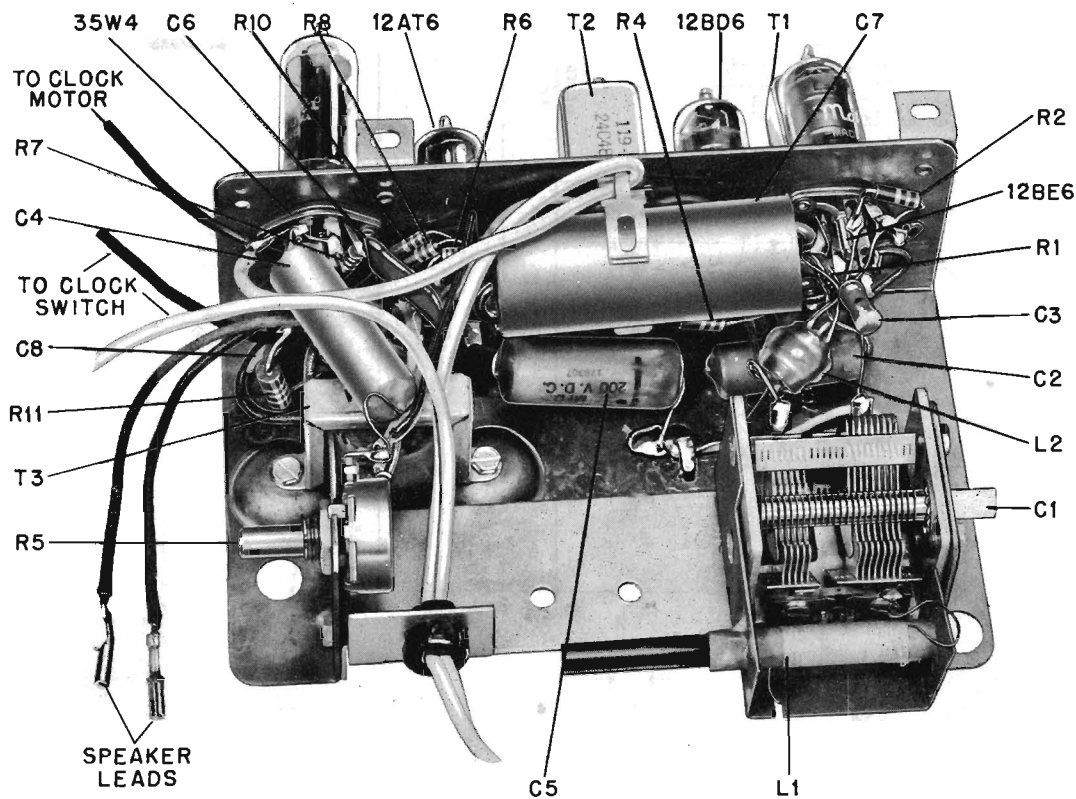
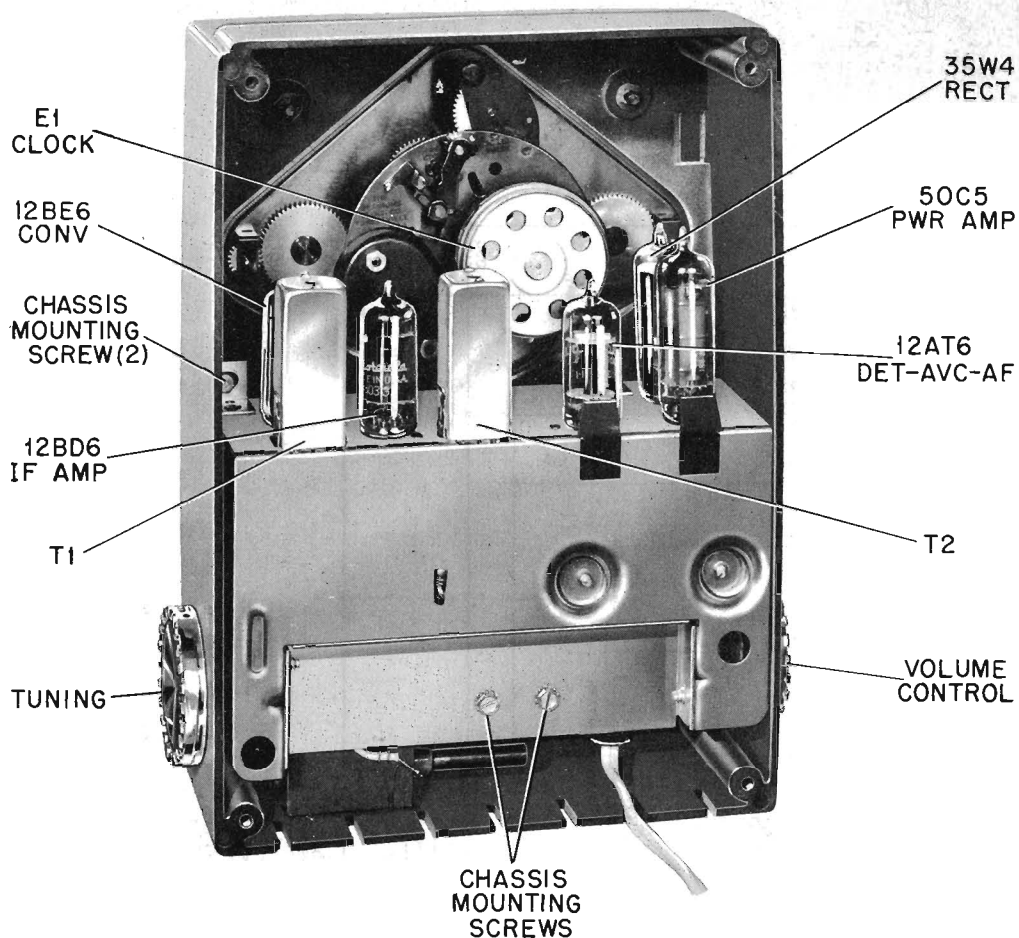


FIGURE 4. PARTS LOCATIONS

REPLACEMENT PARTS LIST

NOTE: When ordering parts, specify model number of set in addition to part number and description of part.

Ref. No.	Part Number	Description	List Price	Part Number	Description	List Price
CHASSIS PARTS - ELECTRICAL						
<u>Capacitors</u>						
C-1	19B620710	Variable: 2-gang.....	2.65	42A75825	Clip, electrolytic mtg.....	.05
C-2	8R9821	Paper, tubular: .05 mf 200V.	.25	42B485548	Clip, IF trans mtg.....doz	.35
C-3	21R115900	Ceramic, tubular: 100 mmf 500V.....	.30	30K630039	Cord, line: less plug; 6 ft long..	.95
C-4	8R9816	Paper, tubular: .05 mf 400V.	.25	5S7805	Eyelet, snap-in (ant insulator mtg)	.15
C-5	8K72686	Paper, tubular: .15 mf 200V.	.25	1V620976	Insulator, antenna loop: fibre; with lead.....	.10
C-6	21B482847	Ceramic, multiple: 2000-220-220-5000 mmf/400V.....	.65	14A630010	Insulator, armite(socket wiring insulator).....doz	.30
C-7	23B600855	Electrolytic: 50-30 mf/150V.	1.60	2S7051	Nut, hex: Palnut; 3/8-32 x 9/16 (volume control mtg).....doz	.15
C-8	21R482726	Ceramic, disc: 10,000 mmf 450V.....	.25	29A620057	Pin, terminal (on spkr leads).....doz	.25
				28A620712	Plug, line cord: removable type...	.30
				43K721440	Retainer, line cord strain relief bushing (use with 43A721314 bushing).....	.10
<u>Clock</u>						
E-1	72K630048	Electric Clock Assembly: Sessions (See SERVICE NOTES for clock repair information).....	-	9R119871	Socket, tube: miniature; 7-prong; with grounding strip and center shield; wafer type.....	.15
<u>Coils</u>						
L-1	24K620703	Antenna loop: with core.....	.85	CABINET PARTS		
L-2	24B680364	Oscillator coil	.90	1V630066	Cabinet, wall clock: plastic; yellow; with speaker cover, less clock dial crystal (52CW1U).....	5.25
<u>Speaker</u>						
LS-1	50B620713	Speaker: 3-1/2" PM; 3.2 ohm VC.....	3.60* exch 2.70	1V630067	Cabinet, wall clock: plastic; white; with speaker cover, less clock dial crystal (52CW2U).....	5.25
or	50B620714			1V630068	Cabinet, wall clock: plastic; green; with speaker cover, less clock dial crystal (52CW3U).....	5.25
				1V630069	Cabinet, wall clock: plastic; red; with speaker cover, less clock dial crystal (52CW4U).....	5.25
<u>Resistors</u>						
Note: All resistors are insulated carbon type unless otherwise specified.						
R-1	6R6004	1 meg 20% 1/2W.....doz	1.20	15K630005	Cover, cabinet back: yellow (52CW1U).....	1.95
R-2	6R6028	22,000 20% 1/2W.....doz	1.20	15K630006	Cover, cabinet back: white (52CW2U)	1.95
R-3	6R2039	68 10% 1/2W.....doz	1.20	15K630007	Cover, cabinet back: green (52CW3U)	1.95
R-4	6R3927	2.2 meg 20% 1/2W.....doz	1.20	15K630008	Cover, cabinet back: red (52CW4U).	1.95
R-5	18A620719	Volume control: 1 meg.....	.80	15K620289	Cover, speaker: yellow (52CW1U)...	1.45
R-6	6R2109	10 meg 20% 1/2W.....doz	1.20	15K620290	Cover, speaker: white (52CW2U)...	1.45
R-7	6R5683	27 10% 1/2W.....doz	1.20	15K620291	Cover, speaker: green (52CW3U)...	1.45
R-8	6R6032	470,000 20% 1/2W.....doz	1.20	15K620292	Cover, speaker: red (52CW4U).....	1.45
R-9	6R6015	220,000 20% 1/2W.....doz	1.20	34K630045	Crystal, clock dial: clear plastic	1.80
R-10	6R6373	150 10% 1/2W.....doz	1.20	42A620709	Hanger, picture: 1" long; with nail (mounts radio to wall).....	.05
R-11	6R6327	1000 10% 1W.....	.20	36B620717	Knob, clock control: black.....	.20
<u>Transformers</u>						
T-1,2	24C485553	IF and Diode transformer: 455 Kc; complete.....	1.45	36C620718	Knob, tuning.....	.50
T-3	25C620715	Output transformer.....	1.50	36K620297	Knob, volume control.....	.50
				3S119885	Screw, thread-cutting: #6 x 5/8; Phillips head; cad pl (back cover mtg).....doz	.25
Part Number	Description	List Price		3S488009	Screw, thread-cutting: #6 x 3/8 plain hex head; cad pl (chassis mtg).....doz	.20
CHASSIS PARTS - MECHANICAL						
43A721314	Bushing, line cord strain relief (use with 43K721440 retainer)....	.10		3S118636	Screw, wood: #10 x 1-1/4 round head; cad pl (mounts radio to wall).....doz	.25
				2S476112	Speednut: for .156" stud (clock mtg).....doz	.15
				2S400014	Speednut: for 3/16" stud (spkr cover mtg).....	.05

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

*Plus Federal Excise Tax At Current Rate